

## **EXTRUSION APPARATUS FOR THREE-DIMENSIONAL MODELING**

### **ABSTRACT OF THE DISCLOSURE**

Disclosed is a multi-tip extrusion apparatus and design methodology whereby a single extrusion head having approximately co-planar, fixed-position dispensing tips is used in a three-dimensional modeling machine to deposit multiple types of materials from distinct material supply sources. The tips are spaced apart a distance great enough so that a road of material extruded by a leading one of the tips will cool and shrink from the plane of the tips so that it is not smeared by contact with a trailing one of the tips.

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